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**APPLICATION FOR LETTERS PATENT  
OF THE UNITED STATES**

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**TITLE OF INVENTION:**

Presence Based System Providing Identity Context Reminders

**TO WHOM IT MAY CONCERN, THE FOLLOWING IS  
A SPECIFICATION OF THE AFORESAID INVENTION**

## **PRESENCE BASED SYSTEM PROVIDING IDENTITY CONTEXT REMINDERS**

### **BACKGROUND OF THE INVENTION**

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#### *Field of the Invention*

10 The present invention is related to a multi-platform communications system and more particularly to an integrated real time location and presence based multi-platform communications system wherein groups of users maintain intra-group communications.

#### *Background Description*

15 Personal productivity applications or tools are well known and readily available for everyday use. Examples of such personal productivity tools include state of the art communications tools including text messaging such as instant messaging applications and e-mail, as well as personal information manager (PIM) software. These personal productivity tools are available as individual stand alone  
20 applications (e.g., America Online (AOL) Instant Messenger (AIM) from AOL, Eudora from Qualcomm Inc., and Palm Desktop from Palm, Inc.) or, integrated in a single office suite, e.g., Microsoft (MS) Outlook in MS Office from Microsoft Corporation. Further, personal productivity tools are available for a wide range of platforms, ranging from small hand held devices such as what are known as personal  
25 digital assistants (PDAs) and web enabled or third generation (3G) cell phones to larger personal computers (PC) and even to distributed or Internet based platforms.

30 Recently, full featured multi-platform communications applications, such as the OpenScape™ application from Siemens Information and Communications Networks, Inc., have integrated and adapted such personal productivity tools, including both voice and text based communications applications, into a single seamless collaborative workplace communications portal. These multi-platform communications applications tie together phone, voice mail, e-mail, text messaging,

calendaring, instant messaging, and conferencing services allowing user groups to communicate and collaborate more efficiently.

5        Provided workgroup member or user information is kept current, dispersed  
users can communicate with one another without being constrained by geography,  
office location, or time zone. With up to date user information these multi-platform  
communications applications streamline business communications and improve user  
productivity, allowing workgroup members or users to minimize wasted time, e.g., by  
reducing or eliminating time spent playing phone tag. As a result, an enterprise  
10        employing such a multi-platform communications application can realize significant  
cost savings by reducing wasted employee time.

15        Unfortunately, presence based systems require users to set and keep current  
their identity context in a system user profile that is shared with other users as  
presence information. If a user forgets to update his/her identity context (which can  
occur frequently), the system presents inaccurate presence information to other  
subscribers and may fail to set the appropriate profile for the user. Consequently, the  
advantages of such a presence based system may be frustrated and potential cost  
savings lost.

20        Thus, there is a need for a way to keep location and presence status current  
and remind users to update such status as apparent status changes occur.

## **SUMMARY OF THE INVENTION**

25        It is a purpose of the invention to reduce employee time wasted trying to  
contact business associates;

30        It is another purpose of the invention to simplify maintaining location and  
presence status up to date;

It is yet another purpose of the invention to remind users to update location  
and presence status whenever a status change is inconsistent with expected location  
and presence.

The present invention relates to a communications system of networked communications devices, method and program product for such a system. Location and presence information about system users is stored, e.g., in a central storage. An identity context reminder service monitors location and presence status for the communications devices for inconsistencies with stored user location and presence information. The identity context reminder service provides a reminder to a respective communications device for each inconsistency. An identity context reminder client may reside on the communications devices to facilitate managing identity context reminder notifications and stored location and presence information.

### **BRIEF DESCRIPTION OF THE DRAWINGS**

The foregoing and other objects, aspects and advantages will be better understood from the following detailed description of a preferred embodiment of the invention with reference to the drawings, in which:

Figure 1 shows an example of a preferred embodiment location and presence capable communications system that identifies potential user status changes and presents the user with an opportunity to update status accordingly;

Figure 2 shows an example of a flow diagram for providing identity context reminders;

Figure 3 shows an example of data flow between an identity context reminder service and an identity context reminder client on an endpoint that may provide location and presence information.

### **DESCRIPTION OF PREFERRED EMBODIMENTS**

Turning now to the drawings and, more particularly, Figure 1 shows an example of a preferred embodiment presence based communications system 100 that identifies potential user status changes and presents the user with a reminder and an opportunity to update status accordingly. In particular, the present invention has

application to any suitable presence based system such as, for example, the OpenScope system from Siemens Information and Communications Networks, Inc. *See generally, OpenScope VI.0, Technical White Paper*, Siemens Information and Communications Networks, Inc., 2003. A preferred presence based system 100  
5 serves users connected on communications devices 102, 104, 106, 108, 110, 112, and that may be distributed over a wide geographic area.

Central storage (e.g., on a server 114) stores identity context information for workgroup users, for example, employee calendar data, contact data or any data that  
10 might be found in a personal information manager (PIM) application. Optionally, identity context information may be stored at distributed locations, e.g., on one or more of the connected communications devices 102, 104, 106, 108, 110, 112. A rule based engine 116, e.g., on server 114, provides an identity context reminder service. The actual user location and presence information stored in central storage and  
15 included in each identity context depends upon the specific presence based service. So, the location and presence information may include personal information about members of a workgroup and other user data for selectively sharing amongst members of the particular workgroup. For example, the location and presence information can provide any suitable indication of the user's current whereabouts or status, e.g., "In  
20 Meeting," "Out to Lunch," "On vacation," "Working from home," and "On Business Trip."

The server 114 is connected to a network 120 that may be a local area network (LAN), the Internet or a combination thereof. The network 120 may be connected to  
25 a public switched telephone network (PSTN) 122. The PSTN 122 may include a Public Land Mobile Network (PLMN) and may be connected to an analog telephone network, e.g., the plain old telephone system (POTS) 124. The PLMN may include a number of base station controllers (BSCs) 126, 128, each of which includes one or more cells serviced by a local base transceiver station (BTS) 130, 132, 134. Some  
30 communications devices 102, 104 may directly connect to the network 120 or wirelessly, e.g., over a wireless access point 136. Wireless communications devices or Mobile Subscriber (MS) units 106, 108 in the cells wirelessly communicate through the particular local base station 130, 132, 134. Each BSC 126, 128 may be a different switching sub-domain (e.g., a different service area) within the system 100.

Typically, user identity context data including location and presence information is loaded into the central data storage on server 114 from any of the communications devices 102, 104, 106, 108, 110, 112 and/or from remote locations.

5 The identity context reminder service provided by the rule based engine 116 is capable of monitoring each user's identity context for location and/or presence changes based on a stored expected event or presence time, calendar, location or, status. Communications devices 102, 104, 106, 108, 110, 112, each may maintain an optional identity context reminder client (e.g., a J2ME application or Microsoft®  
10 .NET™ compact framework base application) that manages identity context notifications. If a user fails to update his/her current status, the preferred presence based system 100 recognizes an inconsistency and sends a prompt to the particular communications device 102, 104, 106, 108, 110, 112, prodding the user, e.g., with a reminder to update identity context and, suggesting a new identity context. Thus, the  
15 identity context reminder service identifies changes that inadvertently cause inconsistent identity context for users, e.g., identifying an unscheduled location change. Then, a reminder is sent to the appropriate user notifying the user of the detected inconsistency or change. Then, the user can update identity context consistent with the change e.g., using the identity context reminder client.

20 Communications device 104 may be any suitable wireless network capable device or multi-function wireless capable device, e.g., wireless LAN/cell phone capable. Examples of wireless capability may include a wireless LAN (WLAN) or a Wi-Fi connection such as an IEEE 802.11a or 802.11b adapter, a cell phone capability  
25 or card or, a Bluetooth connection adapter. Each MS 106, 108 may be any suitable wireless communications device such as a second generation (2G) or third generation (3G) wireless communications device, e.g., a typical cellular phone 106 with text messaging, a wireless capable personal digital assistant (PDA) 108 or, a multi-function wireless capable device 104. Remote or teleworking workgroup members  
30 may connect, e.g., from home computer or terminal 110 or by telephone 112 over the POTS 124 and PSTN 122 to the network 120 and server 114. Personal computers 102 may include any number of suitable such general purpose stand alone computers, such as, for example, desktop computers, notebook computers, tablet computers and the like. The server 114 or mainframe computer may provide all of the central

storage, location and presence services and the rule based engine for the presence based system.

Figure 2 shows an example of a flow diagram 140 for providing identity context reminders according to a preferred embodiment of the present invention. Users provide location and presence data in step 142, which is stored in the central data repository in step 144. Next in step 146 the identity context reminder service retrieves location and presence information for each user, establishes location and presence services with the MS identified for each user and verifies each user's current status. In step 148 the identity context reminder service monitors users' location and/or presence status for changes and with each change, determines if the particular user's location and presence status is inconsistent with that user's stored information. When a user's location and/or presence status changes in step 148, the identity context reminder service identifies the changes. Then, in step 150 the identity context reminder service determines if the user's location and presence status is inconsistent with the user's stored information. If not, revised status may be retrieved in step 146 and the identity context reminder service continues to monitor for status changes in step 148. If in step 150 the change is unexpected and so, inconsistent with stored information, it may be necessary for the user to suggest a new context with an appropriate identity context reminder. In step 152, the identity context reminder service sends identity context reminders to the appropriate communications device, e.g., using a notification service. In step 154 if the user chooses not to update stored information, the identity context reminder service returns to step 148 and continues to monitor for status changes. If, however, the user returns an update in step 154, the user's identity context is updated 144 and retrieved 164 by the identity context reminder service, which resumes monitoring status changes in step 148. Optionally, an identity context reminder client, if included at the MS, can update the stored information and, if necessary, clean the MS inbox of received reminders.

Figure 3 shows an example of data flow between an identity context reminder service 116 with reference to the example of Figure 1 and an identity context reminder client 152 on a typical MS, e.g., 108, which is an endpoint that may provide location and presence information. The identity context reminder service 116 has access to a location service 154 and a presence service 156. Also, a notification

service 158 maintains communication with the endpoint 108, e.g., through a typical text messaging service such as instant messaging (IM), short message service (SMS), e-mail, or another similar message service. As noted hereinabove, the identity context reminder client 152 enables the user to conveniently manage identity context  
5 reminder notifications. So, for example, the user may be an employee carrying the MS 108 at an off-site meeting, e.g., in the cell serviced by BTS 132 and that is scheduled to last for 2 hours. When the MS 108 remains in that cell beyond the scheduled return, the preferred presence based system 100 privately prods the user with a reminder for a status update, e.g., automatically sends a query asking the user  
10 whether he/she would like to update stored information. Similarly, such prodding can be initiated, for example, when a MS 106, 108 moves between cells, when a wireless networked device 104 moves between access point 136 coverage areas or, when a user unexpectedly logs on from a terminal 102, 110. The user may respond with an update for stored location and presence information or, simply by ignoring the  
15 reminder. Thus, the user is reminded to update stale location and presence information or to leave the stored location and presence information.

Advantageously, the present invention automatically reminds group members to update identity context based on time, calendar, location, and current status.

20 While the invention has been described in terms of preferred embodiments, those skilled in the art will recognize that the invention can be practiced with modification within the spirit and scope of the appended claims.